MEI: Multimodal Emotional Intelligence(Digest_要約)

AUTHOR(S):

Angelica, Lim

In this thesis, we design and implement a multimodal emotion system for robots. The overreaching goal is to advance the fundamentals of robot primary emotions by using clues from infant development. Our approach has three prime characteristics, which set it apart from current robot emotion systems.

Firstly, it is multimodal. Humans express and recognize emotions through a variety of dynamic channels, such as voice, movement and music. Our paradigm uses speed, intensity, irregularity and extent (SIRE) to colour a robot's voice, gesture and gait with emotion, using a simple 4-dimensional representation. Secondly, it models emotion statistically. Many emotion models are hand-defined based on a posteriori rules, yet humans are known to be statistical learning machines. Our MEI (multimodal emotional intelligence) module once trained, can recognize emotion in a context it has never encountered, and generate statistically probable emotion expressions. Finally, it is developed through a social process found in caregiver-infant interactions. Emotions are thought to be innate, but according to evidence in developmental psychology, much development happens between the ages of zero and one. In this thesis, we model this first year of life where emotional intelligence grows rapidly, possibly due to a universal phenomenon called motherese.